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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Hiromitsu Nishikawa

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EXAMINER

MENBERU, BENIYAM

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/627,657	Applicant(s) NISHIKAWA ET AL.	
	Examiner BENIYAM MENBERU	Art Unit 2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-10 and 12-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-10 and 12-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 11, 2008 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1, 10, 19, and 20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

3. Claim 1 is objected to because of the following informalities: On line 14, "fo" should be "of". Appropriate correction is required.

4. Claim 19 is objected to because of the following informalities: On line 15, "fo" should be "of". Appropriate correction is required.

5. Claim 20 is objected to because of the following informalities: On line 15, "fo" should be "of". Appropriate correction is required.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 19 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. On line 1, "A computer medium" should be changed to "A computer-readable medium".

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 3, 4, 6, 7, 8, 10, 12, 13, 15, 16, 17, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6172692 to Huang et al in view of U.S. Patent No. 6822757 to Usami et al.

Regarding claim 1, Huang '692 discloses an image processing method of generating color material data for using a plurality of kinds of color materials to output an image (column 7, lines 18-35; The diluted and saturated ink for cyan and magenta are the plurality of kinds of color material.), said method comprising the steps of:

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inputting an image signal (column 7, lines 18-35; The input RGB value determined the output data.);

determining a plurality of combinations of the plurality of kinds of color materials corresponding to the inputted image signals (column 9, lines 28-50; For each input data X in Figure 7, plural combinations of diluted and saturated ink data exist for a target L* value.);

calculating the L* value for each of the plurality of combinations of the plurality of kinds of color materials (column 9, lines 7-39, Each combination of diluted and saturated ink (plurality of kinds of color materials) have corresponding L* value.);

determining a smooth variation of the L* value to a variation of a predetermined color represented by the inputted image signal (column 8, lines 64-67; column 9, lines 1-8; The linear target L* curve shown in Figure 6 is the smooth variation of L* with respect to input index (x).); and

selecting the L* value meeting the determined smooth variation of the L* value from the determined plurality of combinations of the plurality of kinds of color materials (column 9, lines 7-13, 32-49; Final selection of combination of diluted and saturated ink amount is based on the L* value of the combination with respect to the target L* value (smooth variation).),

such that the L* value of the plurality of kinds of color materials meets the smooth function for the L* value within a range of the image signal that can be inputted (column 9, lines 7-13, 27-32; The range is defined for $x > X_{dm}$, wherein the target L* defines the smooth function.).

However Huang '692 does not disclose using the total color material use amount value for the smoothing operation.

Usami et al '757 discloses using the total color material use amount value for the smoothing operation (Figure 12 shows relationship between L* value and total ink amount; column 19, lines 17-30; Thus the L* value is related to total ink amount. Further the function of total ink amount is linearly related to L* value which is related to input RGB data which is smooth function.).

Having the system of **Huang '692** and then given the well-established teaching of **Usami et al '757**, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the system of **Huang '692** as taught by **Usami et al '757**, since **Usami et al '757** stated in col. 19, Lines 24-30, such a modification would provide stability in the printing of CMYK data.

Regarding claim 3, Huang '692 in view of Usami et al '757 teaches all the limitations of claim 1. Further Huang '692 in view of Usami et al '757 discloses determining the combination of the plurality kinds of color material so that the total color material use amount of the plurality kinds of color material, which is determined according to the combination of the plurality kinds of color material, and meets the smooth function for the total color material use amount within a range of the image signal that can be inputted (Huang '692: column 9, lines 28-50; For each input data X in Figure 7, plural combinations of diluted and saturated ink data exist for a target L* value.; column 9, lines 7-13, 27-32; The range is defined for $x > X_{dm}$, wherein the target L* defines the smooth function.); Usami et al '757 teaches using the total color material

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as a characteristic for the generation of color material data (Figure 12 shows relationship between L^* value and total ink amount; column 19, lines 17-30; Thus the L^* value is related to total ink amount.)). Further Huang '692 discloses generating the combination corresponding to the inputted image signal with reference to a table (Figure 4; column 6, lines 16-26).

Regarding claim 4, Huang '692 in view of Usami et al '757 teaches all the limitations of claim 1. Further the combination of Huang '692 in view of Usami et al '757 disclose forming the smooth function for the total color material use amount (Huang '692: column 8, lines 64-67; column 9, lines 1-8; The linear target L^* curve shown in Figure 6 is the smooth variation of L^* with respect to input index (x).; Usami et al '757 discloses in Figure 12 relationship between L^* value and total ink amount; column 19, lines 17-30;).

Regarding claim 6, Huang '692 in view of Usami et al '757 teaches all the limitations of claim 1. Further Huang '692 discloses an image processing method as claimed in claim 1, wherein the plurality of kinds of color material are yellow, magenta, cyan, and black (Figure 3; column 7, lines 10-17).

Regarding claim 7, Huang '692 in view of Usami et al '757 teaches all the limitations of claim 1. Further Huang '692 discloses wherein colors of the plurality of kinds of color material are yellow, magenta, cyan, black, and light magenta, having lower concentration than the magenta, and light cyan, having lower concentration than

the cyan (column 6, lines 62-67; column 7, lines 10-15; diluted reads on lower concentration).

Regarding claim 8, Huang '692 in view of Usami et al '757 teaches all the limitations of claim 1. Further Huang '692 discloses an image processing method as claimed in claim 1, wherein the color material is ink (column 6, lines 62-64).

Regarding claim 10, see rejection of claim 1 as shown above.

Regarding claim 12, see rejection of claim 3 as shown above.

Regarding claim 13, see rejection of claim 4 as shown above.

Regarding claim 15, see rejection of claim 6 as shown above.

Regarding claim 16, see rejection of claim 7 as shown above.

Regarding claim 17, see rejection of claim 8 as shown above.

Regarding claim 19, see rejection of claim 1 as shown above.

Regarding claim 20, see rejection of claim 1 as shown above.

9. Claims 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6172692 to Huang et al in view of U.S. Patent No. 6822757 to Usami et al further in view of U.S. Patent No. 6058207 to Tuijin et al further in view of U.S. Patent No. 7102785 to Tamagawa.

Regarding claim 5, Huang '692 in view of Usami et al '757 teaches all the limitations of claim 4. However Huang '692 in view of Usami et al '757 does not disclose an image processing method as claimed in claim 4, wherein said step of forming the

smooth function displays function for a total color material use amount for a predetermined color on a display device.

Tuijin et al '207 displays function for a total color material use amount for a predetermined color on a display device (column 6, lines 57-67; column 7, lines 1-12; "Total ink value" is displayed.).

Having the system of **Huang '692 in view of Usami et al '757** and then given the well-established teaching of **Tuijin et al '207**, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the system of **Huang '692 in view of Usami et al '757** as taught by **Tuijin et al '207**, since **Tuijin et al '207** stated in column 3, lines 6-21, such a modification would provide flexibility for color correction.

However Huang '692 in view of Usami et al '757 does not disclose forming the smooth function based on input by an operation on the display.

Tamagawa '785 discloses forming the smooth function based on input by an operation on the display (Figure 22; column 14, lines 48-67; column 15, lines 1-3; Operator enters the smoothing range.).

Having the system of **Huang '692 in view of Usami et al '757** and then given the well-established teaching of **Tamagawa '785**, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the system of **Huang '692 in view of Usami et al '757** as taught by **Tamagawa '785**, since **Tamagawa '785** stated in column 2, lines 3-35, such a modification would provide compensation for artifact in the color profile generation.

Regarding claim 14, see rejection of claim 5 as shown above.

10. Claims 9 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6172692 to Huang et al in view of U.S. Patent No. 6822757 to Usami et al further in view of U.S. Patent No. 6577826 to Misaizu et al.

Regarding claim 9, Huang '692 in view of Usami et al '757 teaches all the limitations of claim 1. However Huang '692 in view of Usami et al '757 does not disclose an image processing method as claimed in claim 1, wherein the color material is toner.

Misaizu et al '826 disclose wherein the color material is toner (column 5, lines 45-55).

Having the system of **Huang '692 in view of Usami et al '757** and then given the well-established teaching of **Misaizu et al '826**, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the system of **Huang '692 in view of Usami et al '757** as taught by **Misaizu et al '826**, since **Misaizu et al '826** stated in col. 5, Lines 35-49, such a modification would provide higher quality of image for specific kinds of media by the adjustment of toner.

Regarding claim 18, see rejection of claim 9 as shown above.

Other Prior Art Cited

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6164746 to Akahira et al discloses ink-jet printing.

U.S. Patent No. 4929978 to Kanamori et al discloses color processing system.

U.S. Patent No. 6262810 to Bloomer discloses color correction.

U.S. Patent No. 5687300 to Cooper discloses color correction for press system.

U.S. Patent No. 5633662 to Allen et al discloses limitation of ink.

U.S. Patent No. 5508827 to Po-Chieh discloses color printing.

U.S. Patent No. 6377366 to Usami discloses color conversion.

U.S. Patent No. 7245395 to Couwenhoven et al discloses calibration of print system.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BENIYAM MENBERU whose telephone number is (571) 272-7465. The examiner can normally be reached on 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Moore can be reached on (571) 272-7437. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service office whose telephone number is (571) 272-2600. The group receptionist number for TC 2600 is (571) 272-2600.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see [<http://pair-direct.uspto.gov/>](http://pair-direct.uspto.gov/).

Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner

Beniyam Menberu

/Beniyam Menberu/
Examiner, Art Unit 2625

04/24/2008

/Mark K Zimmerman/

Supervisory Patent Examiner, Art Unit 2625